

Unit 7

Day 3

General and Mixture Problems

Interest = Principle  $\cdot$  rate  $\cdot$  time  
 $I = P \cdot R \cdot T$

P = principal  
R = rate  
T = time

- 1) Anne Kelly received \$52,000 profit from the sale of some land. She invested part at 7.5% interest and the rest at 5.5% interest. She earned a total of \$3280 interest during the 1st year. How much did she invest at each rate?

Earnings @ 7.5% + Earnings @ 5.5% = Total Earning

let  $a$  = <sup>Principal</sup> amt inv @ 7.5% = \$21,000

$\therefore (52,000 - a)$  = <sup>Principal</sup> amt inv @ 5.5% = \$31,000

$$I = P \cdot R \cdot T \quad PRT$$
$$.075a + .055(52,000 - a) = 3280$$

Interest @ 7.5      Interest @ 5.5 = Total Int.

$$75a + 55(52,000 - a) = 328,000$$

$$75a + 2,860,000 - 55a = 328,000$$

$$20a = 420,000$$

$$a = 21,000$$

## Mixture Problems

- 1) A pharmacist wishes to strengthen a mixture that is 10% alcohol to one that is 30% alcohol. How much pure alcohol should be added to 7 liters of the 10% mixture?

	Solution Amt (L)	Strength (%)	Amount of Alcohol
Start	7	.10	.1(7)
Add	X	1	1X
Finish	7+X	.30	$.7 + X$ $.30(7+X)$

let  $x$  = Amt of pure Alcohol

Resulting Vol Alc = Result Vol Alc

$$.30(7+X) = .7 + X$$

$$3(7+X) = 7 + 10X$$

$$21 + 3X = 7 + 10X$$

$$14 = 7X$$

$$2 = X$$

She should add 2L of pure alc. to the 10% mixture to a 30% mixture



- 3) For a chemistry class, the instructor needs a 20% solution of potassium permanganate. She had a 15% solution on hand, as well as a 30% solution. How many liters of the 15% solution should she add to 3 liters of the 30% solution to get the 20% solution?

HOMEWORK:

p. 98-101: 1-15 (all), 28-38 (even)